(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(54) Title: DYNAMIC BLIND SIGNAL SEPARATION



Initialisation information from last window

$\tilde{U}_k$ — 21

Initialise the data (orthogonal components) in the second order stage — 22

Second order stage

Decorrelation: 'Small' updates using Jacobi — 23

$\tilde{V}^T_{k+1}$   Orthonormal signals

$R_k$ / 24

Initialise the data (independence) in the higher order stage — 25

Higher order stage

ICA: 'Small' updates using higher order statistics — 27

— 28
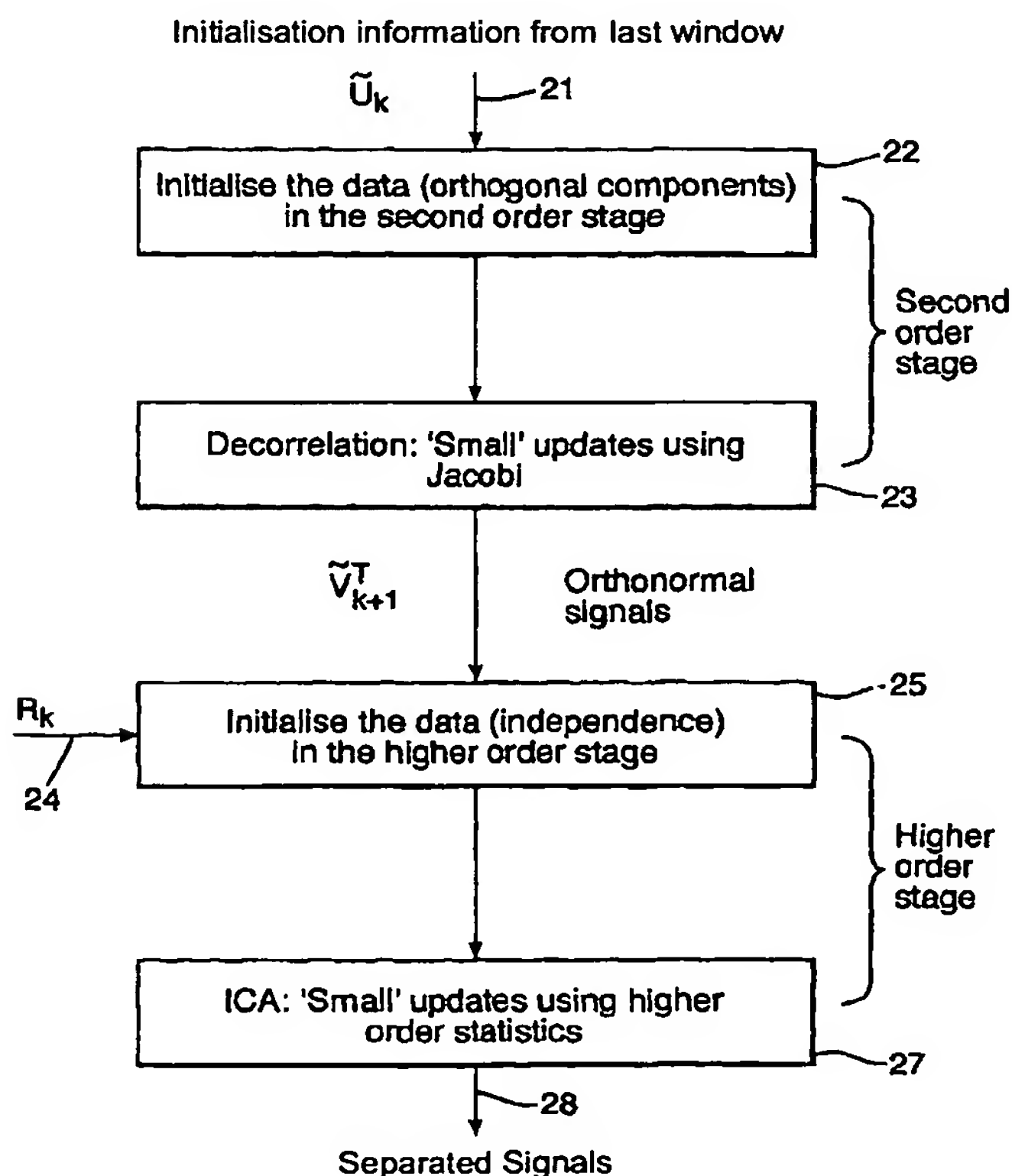
Separated Signals

(57) Abstract: A method for dynamic blind
signal separation generates initialisation
information by processing an immediately
preceding data window. This information
is input at (21) and used at (22) to initialise
orthogonality of data in an immediately
following window. Initialised data are
decorrelated at (23) with small update angles
using a Jacobi technique. Steps (22) and
(23) are collectively a second order stage
of processing in statistical terms producing
orthonormal signals. The orthonormal signals
are initialised at (25) and then undergo
separation at (27) by ICA with small angle
updates using statistics higher than second
order to produce separated signals. The
method may be implemented in an acquisition
phase to separate signals and among them
identify desired signals, and a subsequent
phase in which only the desired signals are
separated. It may also be implemented by
obtaining first results, and subsequently
iteratively updating immediately preceding
results using subsequent data snapshots to
produce snapshot results for combining with
immediately preceding results weighted to
produce exponential fading.

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— *of inventorship (Rule 4.17(iv))for US only*